CLAIMS

1. A wireless transmitter, comprising:

circuitry for providing a plurality of control bits;

circuitry for providing a plurality of user bits;

circuitry for modulating the plurality of control bits and the plurality of user bits into a stream of complex symbols;

circuitry for converting the stream of complex symbols into a parallel plurality of complex symbol streams;

circuitry for performing an inverse fast Fourier transform on the parallel plurality of complex symbol streams to form a parallel plurality of OFDM symbols;

circuitry for converting the parallel plurality of OFDM symbols into a serial stream of OFDM symbols;

wherein each OFDM symbol in the serial stream of OFDM symbols comprises a plurality of data points;

wherein selected OFDM symbols in the serial stream of OFDM symbols carry modulation information;

wherein the modulation information in one or more of the selected OFDM symbols comprises a plurality of modulation groups;

wherein each of the plurality of modulation groups comprises a number of modulation parameters that describe modulation of a corresponding set of data points in a subsequent OFDM symbol in the serial stream of OFDM symbols.

2. The wireless transmitter of claim 1:

wherein the plurality of data points comprise control data points; and

wherein the modulation information is represented as an exponential phase shift on selected control data points in the selected OFDM symbols.

3. The wireless transmitter of claim 1:

wherein the serial stream comprises an integer N+1 OFDM symbols;

wherein N+1 is a multiple of three; and

wherein the selected OFDM symbols are each a third OFDM symbol in a sequence of three OFDM symbols in the serial stream.

4. The wireless transmitter of claim 3 wherein the modulation information is repeated a number of times within the selected OFDM symbols in the integer N+1 OFDM symbols.

5. The wireless transmitter of claim 1 wherein the modulation parameters comprise an identifier of a number of data points in the set of data points corresponding to the modulation group.

6. The wireless transmitter of claim 1:

wherein the modulation parameters comprise an identifier of a superframe;

wherein the superframe includes the selected OFDM symbol that includes the identifier; and

wherein the superframe comprises an integer N+1 OFDM symbols.

7. The wireless transmitter of claim 1 wherein the modulation parameters comprise an identifier of the subsequent OFDM symbol.

8. The wireless transmitter of claim 1 wherein the modulation parameters comprise an identifier of a version of the broadband wireless internet forum corresponding to the modulation parameters.

9. The wireless transmitter of claim 1 wherein the modulation parameters comprise an identifier of a modulation type used for the corresponding set of data points.

10. The wireless transmitter of claim 1 wherein the modulation parameters comprise an identifier of a coding rate used for the corresponding set of data points.

11. The wireless transmitter of claim 1 wherein the modulation parameters comprise an identifier of a number of RS parity bits used for the corresponding set of data points.

12. The wireless transmitter of claim 1 and further comprising an interleaver for interleaving the plurality of control bits and the plurality of user bits, wherein the modulation parameters comprise an identifier of the interleaver depth used for the corresponding set of data points.

13. The wireless transmitter of claim 1 wherein the modulation parameters comprise an identifier of a cyclic redundancy check used for determining whether the modulation parameters are received without errors.

14. The wireless transmitter of claim 1 wherein the modulation parameters comprise an identifier of a coding type used for the corresponding set of data points.

15. The wireless transmitter of claim 1:

wherein the serial stream comprises an integer N+1 OFDM symbols;

wherein N+1 is a multiple of three;

wherein the selected OFDM symbols are each a third OFDM symbol in a sequence of three OFDM symbols in the serial stream; and

wherein each second OFDM symbol in the sequence of three OFDM symbols in the serial stream comprises control data points carrying a portion of a synchronization code.

16. The wireless transmitter of claim 15 wherein each portion of a synchronization code is represented as an exponential phase shift on selected control data points in the second OFDM symbol in each sequence of three OFDM symbols in the serial stream.

17. The wireless transmitter of claim 16:

wherein N+1=180; and

wherein the synchronization code consists of 60 digits.

18. The wireless transmitter of claim 17 wherein the synchronization code comprises a portion of a 64-bit constant amplitude zero auto-correlation sequence.

19. The wireless transmitter of claim 1 and further comprising an interleaver for interleaving the plurality of control bits and the plurality of user bits according to a bit interleaving size; and

wherein the serial stream comprises an integer N+1 OFDM symbols; and

wherein N+1 is a multiple of the bit interleaving size.

20. A wireless receiver, comprising:

at least one antenna for receiving a wireless signal, the signal comprising a serial stream of OFDM symbols, wherein each OFDM symbol in the serial stream of OFDM symbols comprises a plurality of data points; and

circuitry for recovering modulation information from selected OFDM symbols in the serial stream of OFDM symbols;

wherein the modulation information in one or more of the selected OFDM symbols comprises a plurality of modulation groups; and

wherein each of the plurality of modulation groups comprises a number of modulation parameters that describe modulation of a corresponding set of data points in a subsequent OFDM symbol in the serial stream of OFDM symbols.

21. The wireless receiver of claim 20 and further comprising circuitry for demodulating signals responsive to the OFDM symbols in response to the modulation information.

22. The wireless receiver of claim 20 and further comprising:

circuitry for converting the serial stream of OFDM symbols into a plurality of parallel streams of OFDM symbols; and

circuitry for performing a fast Fourier transform on the plurality of parallel streams of OFDM symbols to form a parallel plurality of complex symbols.

23. The wireless receiver of claim 22 and further comprising:

circuitry for converting the parallel plurality of complex symbols into a serial stream of complex symbols;

circuitry for demodulating the serial stream of complex symbols in response to the modulation information.

24. The wireless receiver of claim 20 wherein the modulation parameters comprise an identifier of the subsequent OFDM symbol.

25. The wireless receiver of claim 20 wherein the modulation parameters comprise an identifier of a version of the broadband wireless internet forum corresponding to the modulation parameters.

26. The wireless receiver of claim 20 wherein the modulation parameters comprise an identifier of a modulation type used for the corresponding set of data points.

27. The wireless receiver of claim 20 wherein the modulation parameters comprise an identifier of a coding rate used for the corresponding set of data points.

28. The wireless receiver of claim 20 wherein the modulation parameters comprise an identifier of a number of RS parity bytes used for the corresponding set of data points.

29. The wireless receiver of claim 20, wherein the modulation parameters comprise an identifier of an interleaver depth used by a transmitter of the corresponding set of data points.

30. The wireless receiver of claim 20 wherein the modulation parameters comprise an identifier of a cyclic redundancy check used for determining whether the modulation parameters are received without errors.

31. The wireless receiver of claim 20 wherein the modulation parameters comprise an identifier of a coding type used for the corresponding set of data points.

32. The wireless receiver of claim 20:

wherein the serial stream comprises an integer N+1 OFDM symbols;

wherein N+1 is a multiple of three;

wherein the selected OFDM symbols are each a third OFDM symbol in a sequence of three OFDM symbols in the serial stream; and

wherein each second OFDM symbol in the sequence of three OFDM symbols in the serial stream comprises control data points carrying a portion of a synchronization code.

33. The wireless receiver of claim 32 wherein each portion of a synchronization code is represented as an exponential phase shift on selected control data points in the second OFDM symbol in each sequence of three OFDM symbols in the serial stream.

34. The wireless receiver of claim 33:

wherein N+1=180; and

wherein the synchronization code consists of 60 digits.

35. The wireless receiver of claim 34 wherein the synchronization code comprises a portion of a 64-bit constant amplitude zero auto-correlation sequence.

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